

## Chapter 13

### Air and Missile Defense

This chapter addresses air and missile defense support at the operational level of war. It includes a brief look at the air threat to CSS complexes and addresses CSS force protection from an AD perspective. During most contingency operations, the center of gravity during deployment and entry operations will be critical C<sup>2</sup> nodes, the APODs and SPODs, and the organizations that make up the theater base. The bulk of the forces located in the theater base are CSS organizations assigned to the ASCC.

#### THE AIR THREAT AND JOINT SYNERGY

The current approach to air and missile defense emphasizes leveraging the synergy of joint capabilities to the maximum extent possible to counter the threat. Each joint force component focuses on the type air threat it is best equipped to engage and destroy. The entire spectrum of threat air platforms can be flown against operational-level forces and assets. Enemy air operations may include the use of tactical ballistic missiles (TBM), rotary- and fixed-wing manned aircraft, air-to-surface missiles, cruise missiles, and UAVs.

##### TACTICAL BALLISTIC MISSILES

TBM can be used against strategic-, operational-, or tactical-level targets and may carry weapons of mass destruction and conventional and improved conventional munitions. The TBM target set is best engaged by Army high-to medium-altitude AD (HIMAD) systems with an anti-TBM (ATBM) capability.

##### MANNED AIRCRAFT

Manned aircraft are best suited for air-to-air engagement of other manned fixed-winged aircraft. While joint offensive counterair (OCA) and defensive counterair (DCA) are expected to establish air superiority or air supremacy over the theater, the potential exists for isolated

fixed-winged aircraft that successfully evade the joint OCA and DCA forces to attack theater forces. The potential presence of precision guided munitions and weapons of mass destruction on fixed-wing aircraft makes them a significant threat to operational-level forces and assets. Army ADA must therefore be prepared to destroy any fixed-wing manned aircraft that penetrate the CZ or COMMZ.

##### OTHER

The other aerial targets, cruise missiles, UAV, and rotary-wing aircraft operate at altitudes and locations where fixed-winged air-to-air combat is normally avoided. Rotary-wing aircraft are primarily a threat to forces in the CZ; but they may be used for insertion of UW forces in the COMMZ. Lethal UAVs and cruise missiles, with conventional and improved conventional munitions and weapons of mass destruction, pose a significant threat to forces throughout the theater. UAVs can also be used to conduct RISTA operations. Of major concern to AD commanders is the use of RISTA UAVs, which can provide an enemy with real-time targeting intelligence of friendly forces throughout the theater. Such a capability, when combined with long-range aerial and artillery weapons, provides a potential adversary the ability to conduct deep attacks.

## ORGANIZATION

The CINC/JFC expects to establish air superiority or at least air parity as a result of joint OCA and DCA operations. The Army AD coordinator (AADCOORD) ensures that Army air and missile defense is integrated into joint and multinational counterair operations and planning. He deploys the operational-level AD brigades to provide protection for critical forces and geopolitical and military assets.

Army air and missile defense forces are deployed throughout the theater. Typical ADA forces assigned to each echelon of command are depicted in Figure 13-1. Each CSS command requests ADA protection from its corresponding level commander. The ASCC requires planning for integration of air and missile defense at the following echelons: numbered army, corps, and division.

### NUMBERED ARMY

When a numbered army is introduced into a theater of operations, the AADCOORD coordinates ADA protection with an operational-level ADA brigade or an operational-level ADA battalion task force. The AADCOORD will employ these ADA resources to defend forces and assets within the supporting senior CSS headquarters in accordance with the CINC or JFC's air and missile defense priorities.

### CORPS

Each corps has an assigned ADA brigade. The brigade's HIMAD and FAADS battalions provide air and missile defense for corps assets and forces. The brigade commander, who also serves as the corps AD officer, employs them in accordance with the corps commander's air and missile defense priorities. The corps commander exercises OPCON of all forces assigned or attached to the corps ADA brigade, although the AADCAD's rules of engagement (ROE) and weapons control procedures govern air and missile defense engagement operations.

### DIVISION

Each division has an organic FAADS battalion. The battalion provides air and missile defense for division assets and forces in accordance with the division commander's AD priorities. The corps ADA brigade's HIMAD battalions can provide air and missile defense for some division assets; and corps air and missile defense assets may support the division depending on METT-T and the corps commander's priorities. The division commander exercises OPCON of the AD forces assigned or attached to the division, though air and missile defense engagements are subject to the AADC's ROE and weapons control procedures.

## PRIORITIES

The CINC/JFC approves priorities for protection of forces and assets as well as critical geopolitical assets. The establishment of priorities must support the strategic,

operational, and tactical objectives or MOOTW activities. The process used to determine priorities is based on military decision-making procedures, including the command estimate,

Command	Assigned ADA Forces
Theater	Operational-level ADA brigades
Numbered army	Operational-level ADA brigades
Corps	Corps ADA brigade
Division	Division ADA battalion
Separate regiment/brigade	ADA battery

**Figure 13-1. ADA Forces by Echelon**

METT-T, and assessment of the criticality, vulnerability, recuperability, and threat (CVRT).

Before any ADA is used on the battlefield, air and missile defense priorities must be established. To assist commanders in this task, a step-by-step decision-making process has been developed. When the supported commander follows this process, he can optimize the degree of support that ADA resources afford.

The product of this decision-making process is a prioritized list of selected forces and assets to be defended. Development of these priorities is the basis for planning effective air and missile defenses to meet the needs of the supported commander within the constraints presented by the limited number of available ADA resources. Since the CINC/JFC approves air and missile defense priorities, CSS commanders at all levels must communicate their priorities, through their higher headquarters, to the CINC/JFC. Since the CINC/JFC's priorities are designed to protect the entire force, all of the CSS commander's priorities for air and missile defense protection may not be supported. Considering the CVRT will provide the supported commander the basis to establish ADA priorities.

The supported commander conducts the first step of the decision-making process during his estimate of the situation. As he generates COAs and evaluates his assets, he determines which of these assets requires ADA protection. Determination is made by evaluating each asset for CVRT.

## **AIR AND MISSILE DEFENSE DURING FORCE PROJECTION OPERATIONS**

During the conduct of force projection operations, joint and multinational forces and facilities are vulnerable to both aircraft and tactical missile attack. The concentration of forces and CSS in the APODs and SPODs make them lucrative targets for attack with conventional, improved conventional, and mass destruction munitions. Joint active

### **CRITICALITY**

Criticality is the degree to which the asset is essential to mission accomplishment. Assets are categorized in priority as those which, if damaged—

- Prevent the execution of the plan of action.
- Cause immediate and serious interference with the execution of the plan of action.
- Ultimately cause serious interference with the execution of the plan of action.
- Might cause limited interference with the execution of the plan of action.

### **VULNERABILITY**

Vulnerability is the degree to which the asset can survive an air or missile attack or is vulnerable to surveillance. Consideration should be given to the asset's hardness, its location, the degree to which it can disperse or displace to another position, the degree to which it can provide its own air and missile defense, and the amount of protection afforded by passive air and missile defense measures.

### **RECUPERABILITY**

Recuperability is the degree to which the asset can recover from inflicted damage in terms of time, equipment, and available manpower to resume its mission.

### **THREAT**

The probability of an asset being targeted for attack by enemy aircraft or missiles must be assessed if economical allocation of ADA resources is to be achieved. Targeting information provided by intelligence estimates, past enemy attack methods, and enemy doctrine are all useful in determining which assets require active air and missile defense protection.

defense forces, including Army ADA, are normally among the first to deploy to the theater. US Air Force, US Navy, and allied or coalition air and naval forces provide defense against aircraft; and Army HIMAD and forward area air defense (FAAD) forces protect against all types of aircraft and missiles. As the lodgment is expanded, additional active

defense forces are deployed to the theater as part of the buildup in preparation for decisive operations.

Sufficient active defense forces must be deployed to the theater during early entry operations. HIMAD forces with ATBM capability and forward area AD systems (FAADS) forces provide the level of force protection needed to secure the lodgment from surveillance or attack by aircraft and missiles. ADA forces protect deploying tactical and CSS forces in the PODs and the theater base, as well as critical geopolitical assets listed in the CINC/JFC's air and missile defense priorities. The greatest threats to forces and assets in the lodgment are TBMs, cruise missiles, and RISTA UAVs. Forces are most vulnerable at locations where masses of soldiers and materiel are concentrated in constrained areas, such as beachheads, airfields, and dock facilities.

The commander of the highest echelon AD command in the theater or joint force normally participates as the CINC/JFC's AADCOORD. The AADCOORD integrates the Army air and missile defense activities throughout the theater of operations. Specifically, operational-level ADA brigades provide air and missile defense of critical assets in the theater base and throughout the COMMZ. The senior ADA headquarters commander employs his forces to provide the greatest possible protection to those assets and forces identified as the CINC/JFC's AD priorities.

Air and missile defense forces continue to arrive in the theater throughout the buildup leading to decisive operations. As the buildup progresses, the priorities for air and missile defense protection of selected critical assets can change. While critical assets may receive dedicated ADA protection, other friendly forces and assets within range of an ADA system will also receive a measure of protection.

Once sufficient combat power is deployed to begin expansion operations, the AADCOORD coordinates the air and missile defense design to conform to the CINC/JFC's changing priorities. During this phase, counter-RISTA

becomes increasingly important as the CINC/JFC seeks to mask CSS bases and assembly areas positioned to support the decisive operations phase of the campaign plan. ADA provides leading edge capabilities in the reconnaissance/counterreconnaissance campaign. Air and missile defense elements engage and defeat threat aerial reconnaissance vehicles, including UAVs and helicopters.

Theater active defense forces adjust their coverage to protect as much of the deployed force as possible, while covering critical forces and assets according to the CINC/JFC's priorities. They consist of a complementary mix of systems—Theater High-altitude Area Defense System (THAAD) and Patriot—integrated in layers or tiers. Upper and lower tiers are fully integrated with space-based and other sensors to detect and destroy most types of ballistic missiles.

ADA forces support decisive operations by denying the use of threat aerial reconnaissance, defeating threat helicopter and fixed-wing aircraft, and preventing threat tactical ballistic and cruise missiles from disrupting combat operations. Corps and division ADA protect the maneuver forces while the operational-level ADA unit covers critical forward CSS bases and other assets and forces according to the CINC/JFC's priorities.

During the war termination and postconflict operations phase, the AD focus will be to continue defensive counterair and theater missile defense operations. The AADCOORD will coordinate the repositioning of forces to protect dispersed theater forces and assets. Though hostilities have ceased, air and missile defense forces must maintain full capability to destroy any threat aircraft or missiles targeted against theater forces or assets.

Air and missile defense will continue to protect the theater throughout redeployment and reconstitution. The ADA forces will complete reconstitution, redeploy selected forces, protect redeploying forces, and prepare to conduct follow-on operations.

## INTEGRATED OPERATIONS

The theater CINC/JFC and the AADC coordinate and integrate the operations of

operational-level air and missile defense forces with the operations of joint and multinational

air and missile defense forces. Normally, the AADCOORD performs Army air and missile defense integration functions for the CINC/JFC. The AADCOORD must ensure the projection of sufficient ADA forces to provide adequate protection for all forces and assets identified as CINC/JFC priorities. He recommends to the CINC/JFC the priorities for ADA protection within the theater. These recommendations are also provided to the AADC.

Figure 13-2 depicts the tiered characteristics of ADA protection over a theater of operations. This protection is provided for both tactical and CSS commands, organizations, and bases. It also provides ADA weapon system coverage for forces and assets not provided dedicated support.

- The THAAD will provide the upper tier of the defense. It provides for TBM defense of a large area and lowers the possibility of warhead leakage by providing for multiple shot opportunities at each incoming TBM.

- Patriot, which makes up the lower tier of the TBM defense, also provides defense against all the other types of aerial threats. It is positioned to provide point TBM defense of critical forces and assets while providing long-range coverage of likely air avenues of approach.

- Hawk complements Patriot by providing low to medium coverage of Patriot's flanks, as well as likely air avenues of approach. While Hawk has no ATBM capability, it does provide highly effective defense against fixed- and rotary-wing aircraft, as well as cruise missiles and UAVs.

- Avenger provides low-altitude point defense for critical assets and forces. It is highly mobile and lethal against all types of low-altitude fixed- and rotary-wing aircraft, along with cruise missiles and UAVs. Avenger battalions use the FAADS C<sup>3</sup>I system to cue Avenger fire units using target data provided by the battalion's organic ground-based radars as well as data provided by the theater's HIMAD forces.

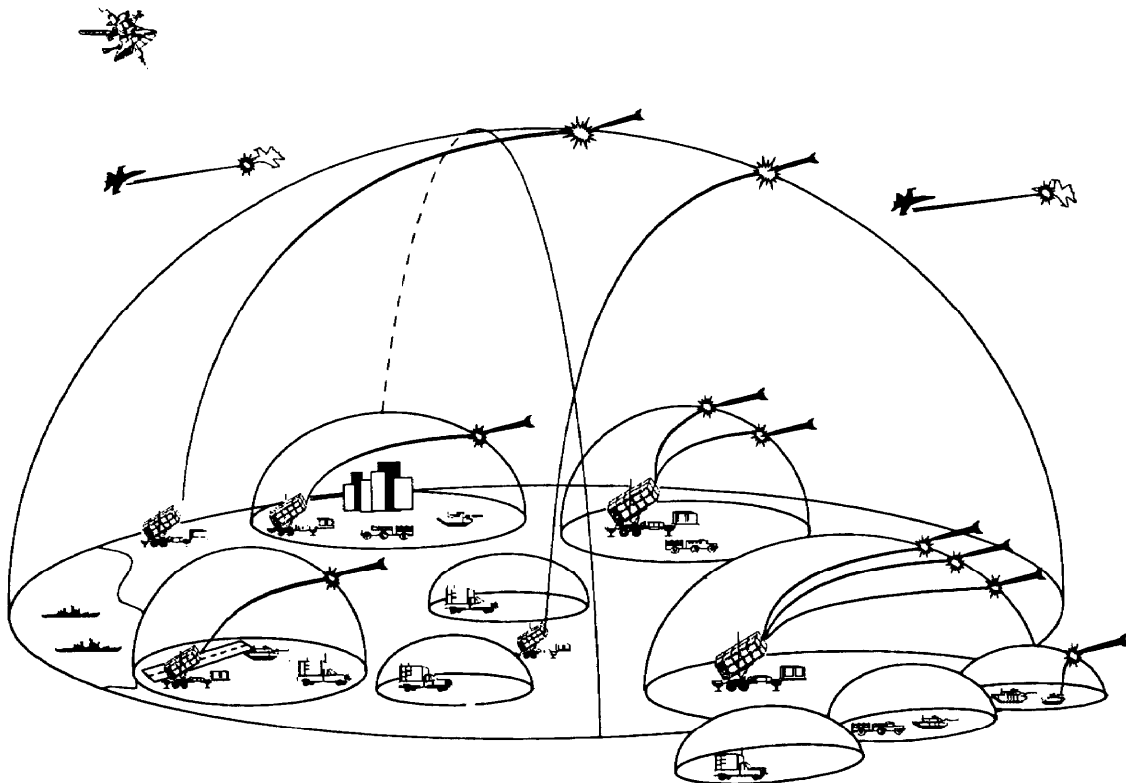


Figure 13-2. Integrated Theater Defense

## SELF-DEFENSE MEASURES

In addition to the protection provided by Army ADA units throughout the AO, CSS units must act to enhance their own force protection against air and missile attack. While most self-defense measures are passive, all organizations must be prepared to use organic weapons for active defense.

Since ADA forces will not be able to provide dedicated air and missile defense for all CSS forces and assets in the AO, CSS organizations should be positioned to take advantage of the coverage that available air and missile defense forces provide. Using base clusters makes it possible for ADA units to cover more CSS assets than would be possible when units are dispersed throughout the AO. CSS assets identified as air and missile defense priorities that do not receive dedicated support should be positioned to take advantage of the coverage provided by ADA units protecting higher priority assets.

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Passive air and missile defense operations include all the means a unit uses to avoid enemy detection, along with the measures taken to minimize damage when attacked. To avoid targeting, CSS units must use OPSEC to conceal their location from enemy visual and electronic surveillance. Within the base cluster, assets should be dispersed to the extent possible. Dispersal of assets in combination with the use of field fortifications and barriers can significantly reduce casualties and damage from air and missile attack.

CSS personnel and air defenders share responsibility for force protection of CSS complexes. The CSS commander develops air and missile priorities, which are integrated into the theater's priorities. The AADCOORD coordinates the employment of available air and missile defense assets to protect the maximum number of priority assets. Defensive fires provided by ADA and self-defense measures employed by CSS units combine to defeat enemy air and missile attacks against theater CSS.